

# Watertown Cambridge Greenway Proposed Lighting Design



Fresh Pond Master Plan Advisory Board Public Meeting | September 7, 2017

# Agenda

## Watertown Cambridge Greenway

- **Project Background**
- **Lighting Study and Design**
- **Ecologist Reports**
- **Next Steps**



# Project Limits

## Water Treatment Facility to Mt. Auburn Street *Within Cambridge*



# Lighting Study and Design

**Lighting of the path needed for:**

**Shorter Days** – lighting needed when days are shorter

**Safety** – lighting of the path creates safety as it does on roads making the path and other users visible

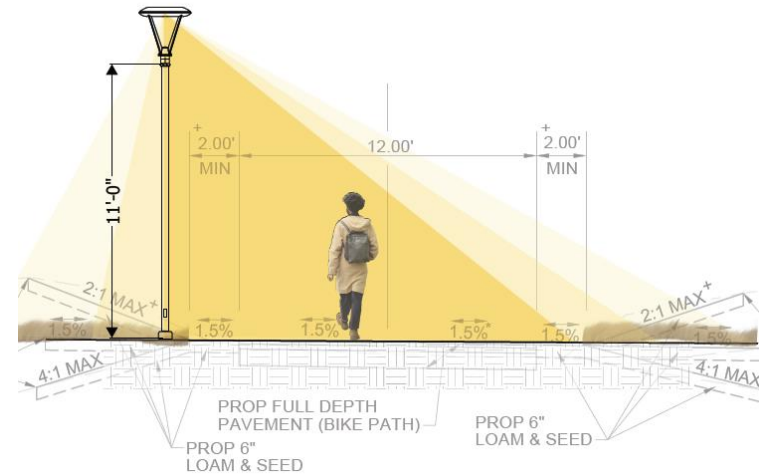
**Encouraging Non-auto Trips** – a lit path will be a useful connection to encourage local shopping and commuting trips via biking and walking that supports city transportation and climate change goals



# Lighting Study and Design

**Purpose:** Review possible methods of lighting for path, while trying to minimize the effect of lighting on the surrounding environment

1. Review range of lighting that may be used
2. Establish design criteria including parameters for creating a schedule when lights would be turned on and off, and dimmed to reduce impact on the environment



PHOTOSHOP  
SIMULATION  
11' POLES,  
100' APART

# Lighting Study and Design

## Techniques to mitigate adverse ecological impacts:

- Put light only where needed, and not into areas where is not needed
- Light only to the minimum levels absolutely required
- Turn off the lights when they are not needed
- Minimize shorter wavelength (“blue”) light and avoid ultra-violet wavelengths

# Lighting Study and Design

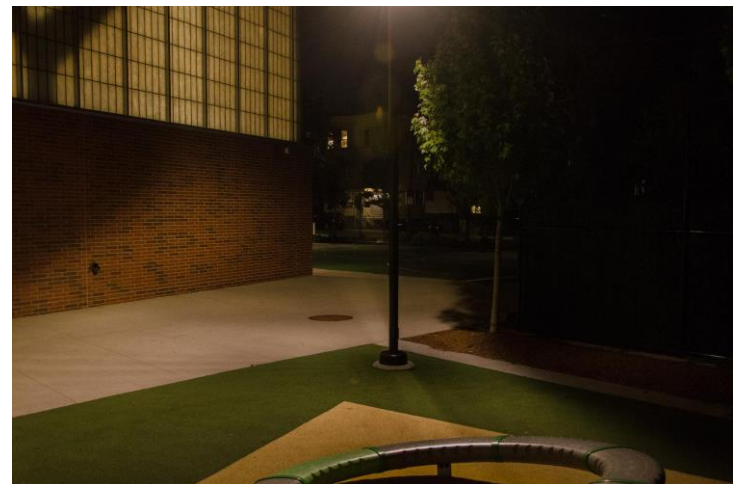
## Recommendation

Fixture with an optical distribution that keeps the light contained on the walkway, with only a very small amount of lighting beyond the edge of the path, to create a sense of security.

- Standard LED fixture used in Cambridge Parks (Cree “Edge Round”) with Type 2 light distribution with backlight shield



Fixture with back-light shielding  
at MLK School



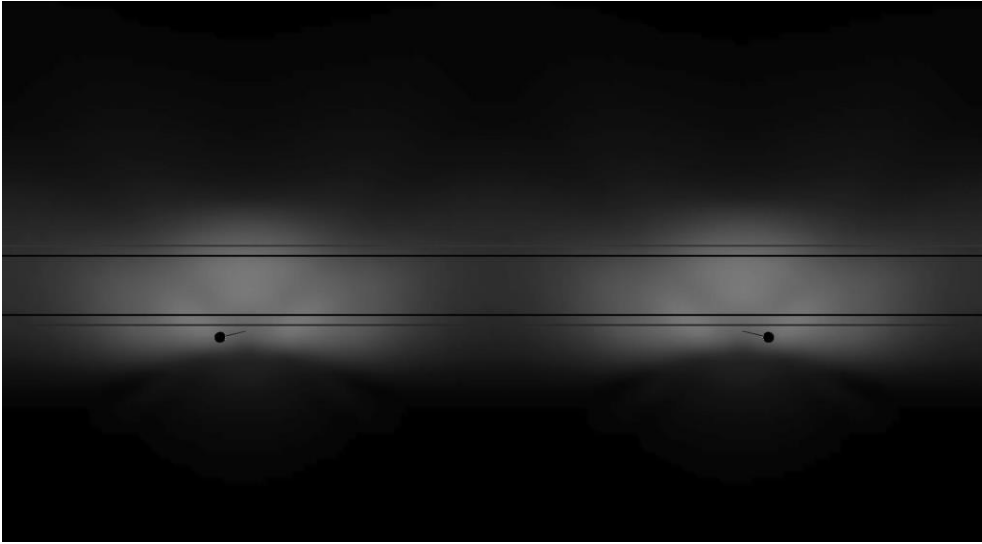


# Lighting Study and Design

| Fixture Design           | Optical Distribution | Pole Height | Spacing        | Dimming Time                                                                   | Color Temp.              |
|--------------------------|----------------------|-------------|----------------|--------------------------------------------------------------------------------|--------------------------|
| Standard Cambridge Park  | Spread to landscape  | 13'         | 70' apart      | Dusk to 10pm (normal);<br>10pm dim (50%)                                       | 3000K<br>“warm”<br>light |
| Greenway Modified Design | Contained on walkway | 11'         | 100-105' apart | Dusk to 9pm: minimal for safety;<br>9-9:30pm dim (10%);<br>9:30 off completely | 3000K<br>“warm”<br>light |

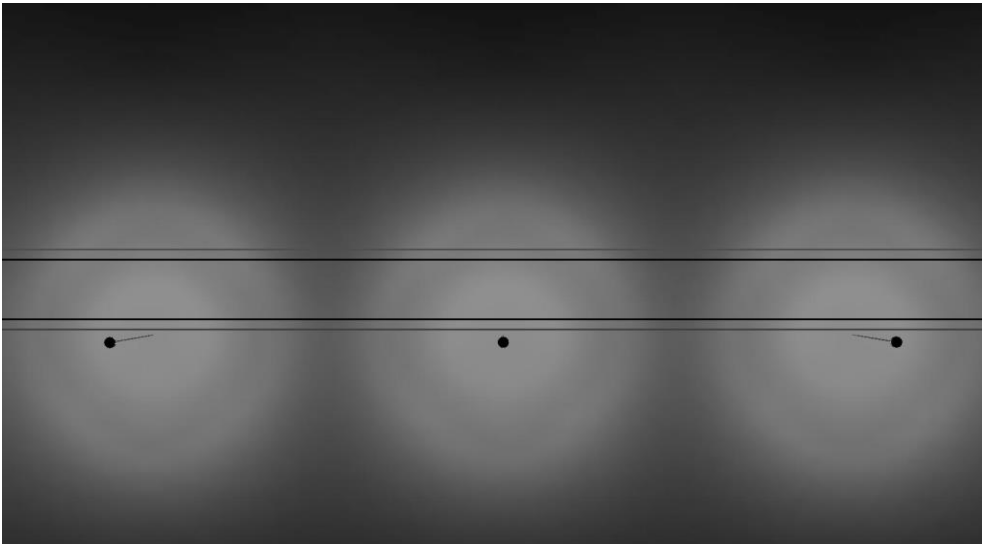


# Lighting Study and Design



## **Proposed Lighting**

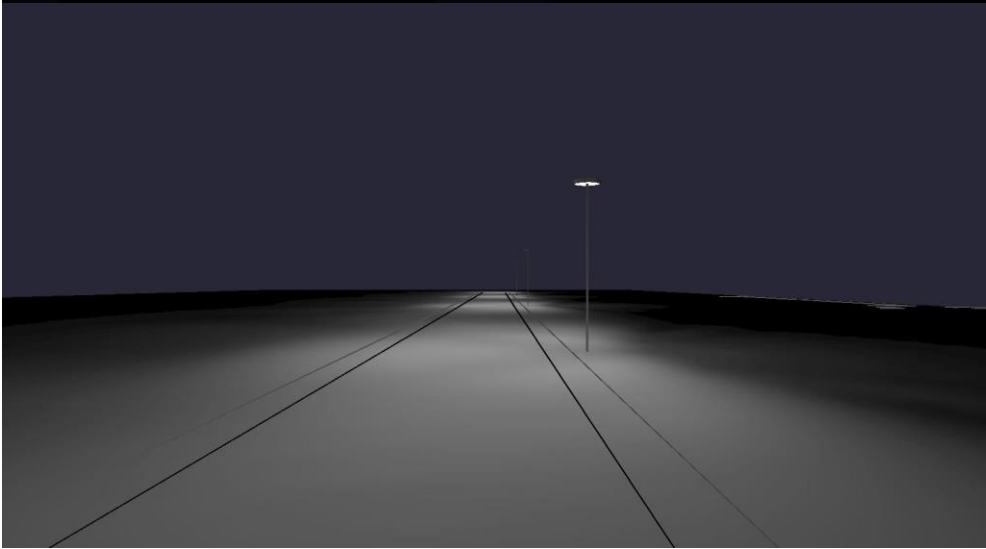
Controlled light distribution/ Backlight shield/ 11ft. pole/ 100 ft. spacing



## **Typical Cambridge Park Lighting**

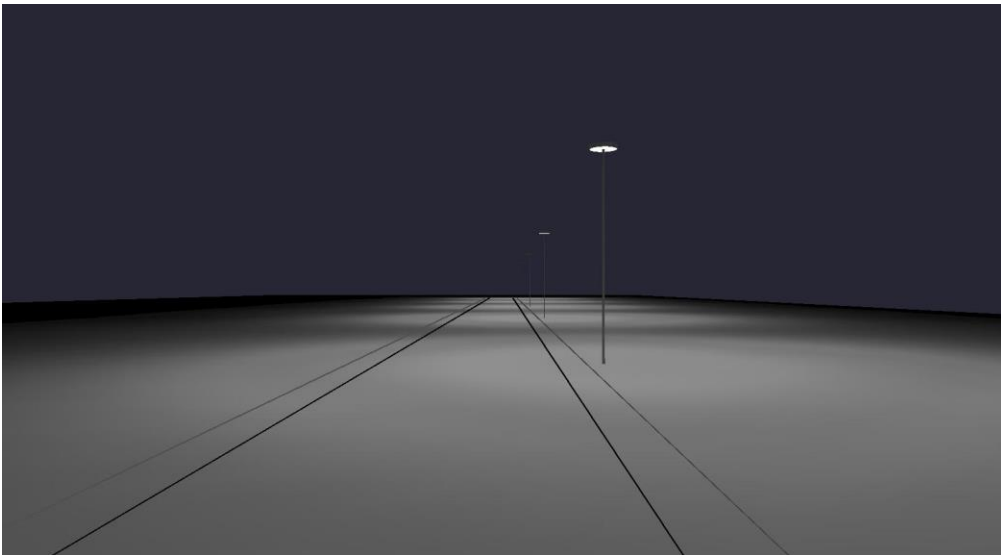
Symmetric light distribution/ 13ft. pole/ 70 ft. spacing

# Lighting Study and Design



## **Proposed Lighting**

Controlled light distribution/ Backlight shield/ 11ft. pole/ 100 ft. spacing



## **Typical Cambridge Park Lighting**

Symmetric light distribution/ 13ft. pole/ 70 ft. spacing

# Ecological Evaluations

**Purpose:** Evaluate if the proposed lighting design will potentially impact ecologically sensitive areas within Fresh Pond Reservation and the lighting effects on wildlife and plants throughout the Cambridge section of the Greenway

## **Methods:**

1. Desktop analysis of existing information regarding historical species occurrence, habitat types, general site characteristics, species habitat preferences
2. Field Observations: Site Visit (May 26, 2017)



*Sarah Barnum, Ph.D.,  
Senior Wildlife Scientist*



*Michael Newhouse,  
Biologist/Wetland Scientist*

# Ecological Evaluations

## Conclusions – Normandeau Associates

- Adds relatively low amount of new light to the environment by limiting the lighted area and recommending lighting for only part of the night.
- Most of the species that would regularly use this treed habitat, either as their primary habitat or as travel corridor, are species that can thrive under or at least tolerate urban conditions, including artificial lighting.
- Slice of habitat is small enough that unlikely to support any individuals or populations of species that do not tolerate urban conditions, and the project does not involve tall lighting structures that could affect migrating birds.
- Ecological impact of the proposed lighting plan is expected to be minimal.

# Ecological Evaluations

## Conclusions – Kleinfelder

- Potential impacts to the ecological resources will be minimized due to the proposed design of pathway lighting.
- Location of the Greenway and the proposed lighting design will have minimal impacts to the natural resources of Fresh Pond Reservation, including plants and wildlife.
- Proposed lighting along the Greenway will have minimal impacts, if any, on wildlife using the corridor made up of the Alewife Reservation, Fresh Pond Reservation, and Mt. Auburn Cemetery.
- Impacts of wavelength on the environment is still unknown.
- Only special concern species found (Blackpoll Warbler) is unlikely to breed in the Site and is unlikely to be affected by this project.



Source: National Audubon Society

# Additional Measures

- Install eco-counter to follow the use of the path and adjust lighting schedule to shorter hours if appropriate
- Conduct pre and post construction light level study
- Consider pre and post construction wildlife study
- Consider Pine Forest study
- Collect additional public feedback through public process



# Status & Schedule

- DCR completing bid package for bidding in Sept. 2017
- Possible construction start in late fall 2017 or spring 2018
- Lighting included under Mt. Auburn Bridge as well as lighting conduit and handholes in remainder of corridor in bid.

# COMMENTS & QUESTIONS?

